

NORTHWOODS JOURNAL – FEBRUARY 2022

A Free Publication about Enjoying and Protecting Marinette County's Outdoor Life

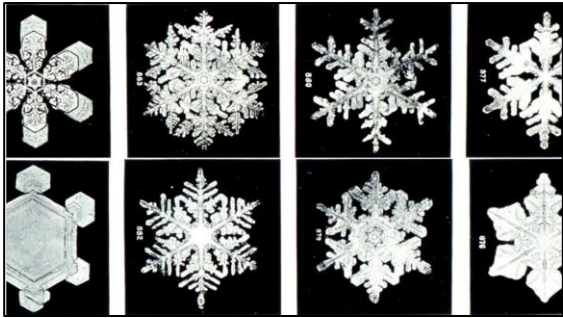
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How do Snowflakes Form? Get the Science Behind Snow

<https://www.noaa.gov/stories/how-do-snowflakes-form-science-behind-snow> &
<http://www.snowcrystals.com/science/science.html>



Microscopic view of snowflakes by Wilson Bentley. From the Annual Summary of the Monthly Weather Review for 1902. Bentley was a farmer whose hobby was photographing snowflakes. Source: NOAA Photo Library archives Weather Wonders collection, www.photolib.noaa.gov.

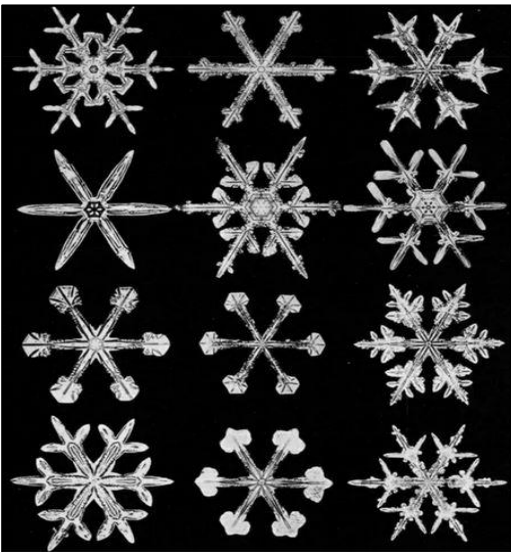
Q: How are snowflakes formed?

A: A snowflake begins to form when an extremely cold-water droplet freezes onto a pollen or dust particle in the sky. This creates an ice crystal. As the ice crystal falls to the ground, water vapor freezes onto the primary crystal, building new crystals – the six arms of the snowflake. That's the short answer.

The more detailed explanation is this:

The ice crystals that make up snowflakes are symmetrical (or patterned) because they reflect the internal order of the crystal's water molecules as they arrange themselves in predetermined spaces (known as "crystallization") to form a six-sided snowflake. Ultimately, it is the temperature at which a crystal forms – and to a lesser extent the humidity of the air – that determines the basic shape of the ice crystal. Thus, we see long needle-like crystals at 23 degrees F and very flat plate-like crystals at 5 degrees F.

The intricate shape of a single arm of the snowflake is determined by the atmospheric conditions experienced by entire ice crystal as it falls. A crystal might begin to grow arms in one manner, and then minutes or even seconds later, slight changes in the surrounding temperature or humidity causes the crystal to grow in another way. Although the six-sided shape is always maintained, the ice crystal (and its six arms) may branch off in new directions. Because each arm experiences the same atmospheric conditions, the arms look identical.

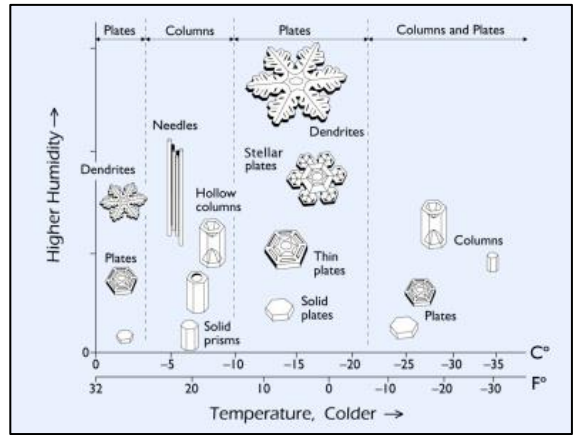


Q: So, why are no two snowflakes exactly alike?

A: Well, that's because *individual snowflakes* all follow slightly different paths from the sky to the ground – and thus encounter slightly different atmospheric conditions along the way. Therefore, they all tend to look unique, resembling everything from prisms and needles to the familiar lacy pattern.



The way snow crystals grow depends strongly on the temperature and humidity in the clouds. This is summarized in the *Snow Crystal Morphology Diagram* below. This is also called the *Nakaya Diagram*, after Japanese physicist Ukichiro Nakaya, who discovered this behavior by growing snow crystals in his lab in the 1930s.



It shows that the largest, most photogenic stellar snow crystals only grow in a narrow temperature range around -15 C (5 F). Needles and columns are best found around -6 C (21 F). Capped columns appear when the temperature *changes* as the crystals grow. Remember these are temperatures in the clouds; it is often substantially warmer on the ground.

You can also see that more elaborate, branched crystals grow when the humidity is high. Simple prisms grow when the humidity is low (or when the crystals are tiny).

For more about snowflakes and how they form, visit:

- <https://www.themarginalian.org/2020/01/19/wilson-bentley-snowflakes/>
- <https://www.pbs.org/newshour/science/the-science-of-snowflakes>
- <https://www.sciencenewsforstudents.org/article/how-snowflake-made>



See page 9& 10 for more about winter survival in the snow and these creatures!

Join in the Great Backyard Bird Count (GBBC), Feb. 18-21!

<https://www.birdcount.org> & www.audubon.org/conservation/about-great-backyard-bird-count



Each February, for four days, the world comes together for the love of birds. Over these four days we invite people to spend time in their favorite places watching and counting as many birds as they can find and reporting them to us. These observations help scientists better understand global bird populations before one of their annual migrations. **The 25th annual GBBC will be held Friday, February 18, through Monday, February 21, 2022.**

The Great Backyard Bird Count (GBBC) is a free, fun, and easy event that engages bird watchers of all ages in counting birds to create a real-time snapshot of bird populations. Participants are asked to count birds for as little as 15 minutes (or as long as they wish) on one or more days of the four-day event and report their sightings online at birdcount.org.

Anyone can take part in the Great Backyard Bird Count, from beginning bird watchers to experts, and you can participate from your backyard, or anywhere in the world.



Red-bellied woodpecker

Launched in 1998 by the Cornell Lab of Ornithology and National Audubon Society, the Great Backyard Bird Count (GBBC) was the first online citizen science project, also referred to as community science, to collect data on wild birds and to display results in near real time. Birds Canada joined the project in 2009 to provide an expanded capacity to support participation in Canada. In 2013, we became a global project when we began entering data into eBird (<https://ebird.org/home>), the world's largest biodiversity-related citizen science (community science) project.

Each checklist submitted during the GBBC helps researchers at the Cornell Lab of Ornithology and the National Audubon Society learn more about how birds are doing, and how to protect them and the environment we share. Recently, more than 160,000 participants submitted their bird observations online, creating the largest instantaneous snapshot of global bird populations ever recorded.

Bird populations are always shifting and changing. For example, 2014 GBBC data

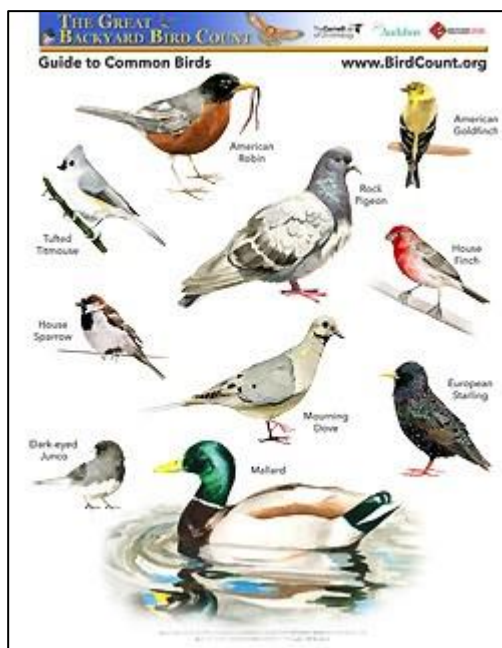
highlighted a large irruption of Snowy Owls across the northeastern, mid-Atlantic, and Great Lakes areas of the United States. The data also showed the effects that warm weather patterns have had on bird movement around the country. For more on annual GBBC results at <https://www.birdcount.org/learn/annual-results/>.



At www.birdcount.org/, participants can explore real-time maps and charts that show what others are reporting during and after the count.

To get an idea of what you can expect to see in your area during the next GBBC, go to <https://ebird.org/explore>.

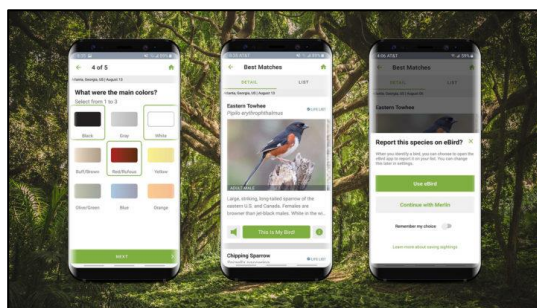
The Great Backyard Bird Count is an inter-organizational effort between the Cornell Lab of Ornithology, National Audubon Society, and Birds Canada. We work together to bring the joys of bird watching to our members.



How to Participate

Participating is easy, fun to do alone, or with others, and can be done anywhere you find birds. Choose the easiest way for you to share your birds:

- Identify birds with Merlin Bird ID app and add sightings to your list
- Use the eBird Mobile app
- Enter your bird list on the eBird website (Desktop/laptop)



All you need is a free Cornell Lab account to participate. This account is shared with Merlin, eBird, Project FeederWatch and other projects at the Cornell Lab of Ornithology. (If you already have an account, please use the same username

and password for submitting your bird list for the Great Backyard Bird Count.)

We recommend observing birds for at least fifteen minutes. See this webpage for more detailed counting instructions: <https://www.birdcount.org/tools/counting-instructions/>. Submit one or more lists over the four days of counting and you become a contributing citizen scientist (community scientist). All eBird entries and saved Merlin Bird IDs over the four days contribute to the Great Backyard Bird Count.



Dark-eyed Junco

"We all need an incentive to get outside mid-winter and look for birds beyond what we can see from our windows. It's fun to see the little flashes of light on the map when we submit our counts, among the thousands around the world, and we know our data matter." — Barb Gorges, Wyoming, United States

Birdwatching in Marinette County

Looking for spots to explore and watch birds/wildlife in the County? Here are some suggestions!

- Bloch Oxbow State Natural Area, Peshtigo - <https://dnr.wisconsin.gov/>
- Governor Thompson State Park, Crivitz - https://dnr.wisconsin.gov/topic/parks/gov_thompson
- Seagull Bar State Natural Area, Marinette - <https://dnr.wi.gov/topic/Lands/naturalareas/index.asp?SNA=37>
- Green Bay West Shores Wildlife Area & Peshtigo Harbor Unit (below) - <https://dnr.wisconsin.gov/topic/Lands/GBWS/index.html> & <https://dnr.wisconsin.gov/topic/Lands/GBWS/peshtigoharbor.html>

Marinette County parks and village/town parks are other good places to explore too. Here is another list of good birdwatching areas in Northeastern Wisconsin from the Northeastern Wisconsin Audubon Society - <https://newiaudubon.org/local-birding-info>. It includes areas in surrounding counties.



Ovenbird



Get to Know the Canids

<https://kidwings.com/project/pups-to-packs-2016-winter-slq/>



Canids: What Are They?

The easiest way to answer this question is to look in your own household or backyard. Domestic dogs are members of this family. In addition to the domestic dog, other canids are the wolf, fox, and coyote (jackals are also canids but don't live in North America). Simply put, a canid is a mammal belonging to the dog family. Here are some interesting facts about each of these members.

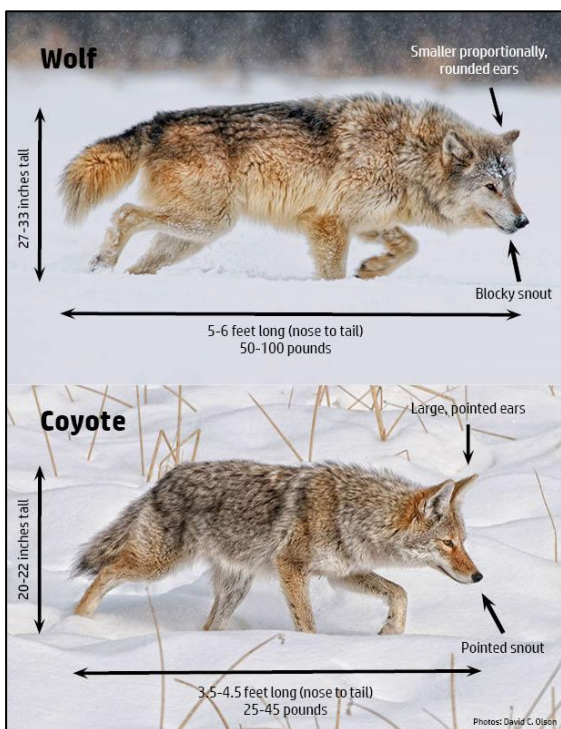


Dog:

Scientific name: *Canis lupus familiaris*. According to Oxford researchers Joeline Hughes and David Macdonald, there are more than 700 million dogs living in the world today. Dogs serve humans in a variety of ways. They are our loving companions, and are used as work dogs, hunting dogs and guardians of animals. They even serve in the medical profession.

Wolf:

Scientific name: *Canis lupus* (gray wolf), *Canis rufus* (red wolf), *Canis lupus baileyi* (Mexican wolf – all North American species). Wolves are the largest members of the canid family living in some areas in North America, Europe, and Africa. They are carnivores and can kill large prey such as elk and deer. The average gray wolf weighs about 70-100 pounds.



Coyote:

Scientific name: *Canis latrans*. Coyotes are smaller in size than their wolf cousins. They weigh between 20-50 pounds and live only in North and Central America. Unlike the wolf, a coyote is an omnivore (meat and plant eater) and eats a variety of foods.

Fox:

Scientific name: *Vulpes* (genus – five species in North America: red, gray, arctic, kit, & swift). The fox is the smallest of the canid family, weighing between 12-15 pounds. It can be found living on all continents. Unlike the wolf and coyote, the fox does not hunt in packs. It is also omnivorous.



Red fox at left; Gray fox at right

Who's Who Among North American Canids

The gray wolf inhabits the Western Great Lakes states as well as the Northern Rocky Mountains. Gray wolves' color can range from a light, grizzled gray to black, but also white. They live in packs of at least two wolves, and as many as 24.

The Mexican gray wolf can be found in Southeastern Arizona, Western New Mexico and Mexico. This canid is endangered. There are only about 100 Mexican gray wolves in the wild. Also known as *El Lobo*, this wolf is light gray with brown on its back. Mexican wolves also live in packs, but typically between two and ten wolves in each pack.

Historically, the red wolf lived throughout the Southeastern United States. Now, however, there are only about 50-75 wild red wolves living in eastern North Carolina. Smaller and more slender than its cousin the gray wolf and larger than a coyote, the red wolf is known for its reddish, brown hair coat. It is also endangered.



Coyotes inhabit every state in the USA, as well as Central America. They can be found in both rural communities as well as large cities. (Recently, a coyote was seen on a rooftop in New York City, but the city with the most coyotes may be Chicago.) Coyotes usually have large ears and a narrow snout. While running, a coyote will carry their black-tipped tail hanging low. Most weigh between 20-50 pounds, depending upon where they live. Those living in the northern regions and mountains are much larger than those living in the south and deserts. Coyotes' coloring varies depending upon geographical location. It is mostly light gray and red with some hairs around its body being black and white.

Foxes

Gray foxes are smaller than red foxes. They weigh 7-13 pounds and average 3-4 feet in length including the tail. Gray foxes are stockier and have shorter legs than the red fox. Its range in the United States is very large, and into Mexico and Central America. It lives in diverse habitats and prefers a habitat with lots of brush or woods.

The red fox is the most abundant wild canid in the U.S. because of its ability to adapt easily to new environments. It has an elongated body weighing between six to 24 pounds. Its tail, which is longer than half of its body, is used like a cover in cold weather and as a signal flag to communicate to other family members. The coloring of the red fox is predominantly a bright rusty-red hue with yellowish tints.



Fox kits at play

The swift fox, below, is the smallest of the American foxes. It has pale yellow fur with brownish ears and a fluffy tail with a black spot at the base of its tail and at the tip. Found in less than 40% of its home range, the small, light orange-tan swift fox is now found in the western grasslands of North America, in states such as Colorado, New Mexico and Texas. Similar in size to a domestic house cat, this fox is 12-16 inches tall and weighs about six pounds.



The kit fox, below, is another small species of fox. They usually measure 18- 21 inches in length (not including the tail), and weigh 3- 6 pounds, with males being on the larger side. This fox can be found primarily in the Southwestern United States and northern end of central Mexico. Its large ears, like that of the red wolf allow this mammal to lower its body temperature in the hot climates in which it lives. Like the coyote, it too has a black tip to its tail. Its color ranges from yellowish to gray.



How Can You Tell the Difference Between Them?

Gray wolves are the largest of all the canids in North America. The easiest way to tell is to simply look at the size of the animal. Wolves are much larger than coyotes; almost twice the size in some cases. You can also look at the shape of their ears and snout. Wolves have rounded ears and a blocky snout. The Mexican gray wolf can be identified by its distinguished coat of reds, copper, black, tan, and whites. They are smaller than gray wolves, but they are still larger than coyotes.

The Red wolf is smaller than its cousins, weighing in at about 50-80 pounds. Known for its large ears (relative to the size of its head) and broad nose, the red wolf's fur is a brownish-red coloration with dark black patches. The reddish tinge can be observed on its ears and back legs.

Continued next page



Winter Wildlife: Animals That Hibernate in Your Yard

<https://www.birdsandblooms.com/gardening/backyard-wildlife/animals-that-hibernate/>

Many backyard guests - such as monarch butterflies and orioles - make for warmer climates as temperatures drop. The rest hunker down. How they prepare and where they lay their heads sometimes differ even within the same species. But no matter how they overwinter, animals that hibernate do it for the same reason: to conserve energy.



As days shorten, animals take the cue from Mother Nature and add layers of fat while food is more available. "These reserves essentially act as a big bank of energy that animals draw from while they're in the deep-sleeping state of hibernation," says Kevin Brunke, natural history biologist with the Missouri Department of Conservation.

To make those reserves last, animals lower their metabolism and body temperature and slow their heart rate and breathing. "They burn fewer calories while they wait for more favorable foraging opportunities to become available," Kevin says. Hibernation champs include groundhogs, ground squirrels (above), meadow jumping mice, and some species of bats. These bona-fide hibernators remain in a state of inactivity for several days, weeks or months and can sleep through loud noises and other commotion.

Do Groundhogs Hibernate?

Groundhogs hibernate inside burrows below the frost line in wooded or bushy areas for as long as 150 days. During that time, a groundhog's heart rate slows from 80 beats per minute to an amazing five beats per minute, and its body temperature falls from 99 degrees to as low as 33 degrees.



Do Bats Hibernate?

Little brown bats hibernate even longer. They stay inactive for more than six months in barns, hollow trees and attics, sometimes with other bats for warmth.



Animals That Hibernate: Light Nappers

Opossums, raccoons, skunks and chipmunks enter a sort of mini-hibernation called torpor, in which they conserve energy for a short period, then

wake to find food when temperatures rise and weather improves, according to Kevin. "Animals do this because their body's regular metabolism is so high it would burn up all their energy reserves while they're sleeping," he says.

Do Raccoons and Chipmunks Hibernate?

When the animals wake, they carry on as usual. Raccoons leave their dens in hollow trees, barns, sheds and crawl spaces to look for food. Chipmunks occasionally emerge from their underground burrows (or from under decks, sheds and foundations) to retrieve food from hidden caches.



Do Mice Hibernate?

Field mice leave their nests under tree stumps, rocks, decks or porches (or even in houses accessed via cracks in the foundations) to nibble on stored food.

Do Birds Hibernate?

Some backyard birds also go into torpor. Chickadees, doves, hummingbirds, titmice and small owls may become inactive for a few hours or overnight. Favorite roosting spots for many birds include birdhouses, tree cavities and evergreens.

Animals That Hibernate: Cold-Blooded Creatures

Unable to generate their own heat, cold-blooded animals like reptiles and amphibians survive frosty temperatures and scarce resources by slowing down considerably and oftentimes becoming inactive.

Do Frogs and Turtles Hibernate?

Frogs and salamanders can escape freezing temperatures by burrowing in the mud on the bottoms of ponds, and turtles by burying themselves in soft ground below the frost line. "They just need to get down deep enough to where the earth doesn't freeze solid," Kevin says. "During warm periods, cold-blooded animals may become active."

Wood frogs, common box turtles and some salamanders burrow in leaves and actually freeze. Their bodies produce glucose that acts like an antifreeze that protects their cells and, come spring, they thaw out.

Animals That Hibernate: Insects

To survive freezing temps, insects become inactive and stop growing. They go dormant at various life stages. Some lay eggs before they die, so new insects can emerge in spring. Others dig themselves underground as larvae. A few are able to endure winter as adults, producing a natural antifreeze.

Do Bees Hibernate?

In the case of bumblebees, only the queen survives the coldest months, while the rest of the colony dies. After mating with males and feeding on pollen, the queen leaves the nest to find a place to hibernate. "Usually, it's a small pocket in the soil or another little cavity where she'll live off those fat stores," says Kelly Gill, a senior pollinator conservation specialist for Xerces Society for Invertebrate Conservation.

More than 3,000 species of solitary bees in the

Canids, continued from page 3

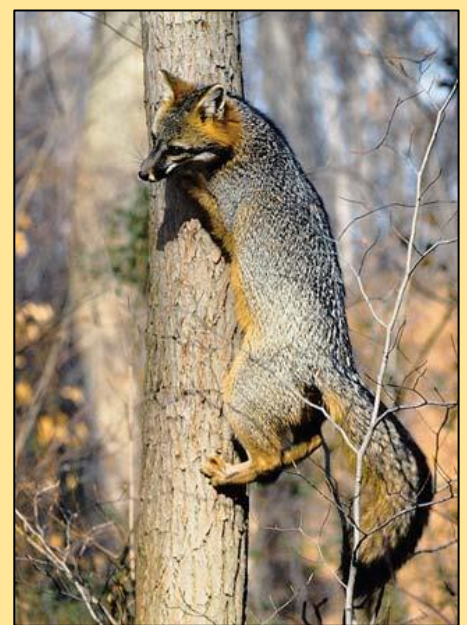
The coyote is much smaller than the wolf, though it is very similar in shape and color. Often the young red wolf is mistaken for a coyote. However, you can tell it's a coyote by the large pointy ears – often much larger in proportion to their head than those of a wolf – and their pointy snout. You can often see coyotes using their big ears to pinpoint the location of their prey, much the way a fox does. Another distinguishing feature of the coyote is its familiar high-pitched yips and howls. When traveling, a coyote will carry its black-tipped tail in a much lower position than a wolf does.



With many cat-like similarities, foxes are the smallest of the North American canids. They have vertical slit eyes and some have partially retractable claws. Foxes vary in size depending on their species. You can easily determine if you are seeing a fox because its ears are much bigger in proportion to its head than those of other canids. This is because they rely on their hearing to find food. They can even hear a mouse moving several feet below the snow! Then they pounce and dive headfirst to try and catch their prey.



With the naked eye, one might not be able to see the whiskers on a fox's legs which, along with those on its face, help this very nocturnal predator find its way. Unlike a wolf or coyote, gray foxes can also climb trees. Foxes are not pack animals - when hunting for food, this animal is seen alone.



For more about the Canids, visit:

- <https://dnr.wisconsin.gov/topic/WildlifeHabitat/furbearers.html>
- <https://animaldiversity.org/accounts/Canidae/>
- <https://northamericannature.com/which-canids-live-in-north-america/>

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How to Help Your Kids Stay Active Outside this Winter

<https://getthekidsoutside.com/kids-active-outside-in-winter/>



Help your kids stay active outside this winter (and enjoy it) with a few simple tips. It might be cold out there, but adventure still awaits! When temperatures drop, it's easy to hunker down, get cozy and stay inside. But let's not forget the benefits of outdoor play, which don't go on hiatus over the winter. With proper clothing and a positive attitude, we can still get outside, stay active and have fun!

Why your kids should stay active outdoors this winter

Getting outdoors in the winter isn't always easy, but there are many reasons why it is worth the effort. Contrary to common misconceptions, outdoor play in winter is *beneficial* to your kids' health and well-being. Here are some of the reasons why we should get outside even when the temperatures drop:

- Despite several myths, playing outside in the cold actually [strengthens your children's immune system](#). Leave your fears of bacteria and dust behind and venture out into the fresh air!
- As we know, **kids need to stay active**. Playing outside helps them burn off "extra energy" and avoids a sedentary lifestyle. It helps with concentration in class and keeps them from bouncing off the walls.
- Playing outside in the cold **helps kids problem solve when facing new challenges**: slippery surfaces, harder surfaces, less flexible materials, loose parts frozen in place.
- **Continues exposure to sunlight and Vitamin D**. Getting their daily dose of sunlight provide essential Vitamin D, which helps with mental, physical, and emotional health. Sunlight can help improve mood and mental planning skills, help with concentration and energy levels, contribute to bone strength and heart health, and helps regulate circadian rhythms. It only takes 10-20 minutes for their daily dosage of vitamin D, which is doable even in the depth of winter.
- Children get to **experience and interact with the outdoors from a different perspective**. What used to be green might now be white. Puddles they used to splash in might now be hard and slippery. Instead of splashing around, they can practice breaking the ice.
- **Using different muscles; gross motor development**. Just like running in sand is different from running on pavement, moving around in the snow engages different muscles than playing on grass or dirt. Pulling a sled up a hill, pushing a snowball around the yard, not to mention skating and skiing — these activities help children continue to develop balance, coordination and gross motor skills.



How to help your kids stay active outside this winter

Dress in layers! Start with a base layer of merino wool or moisture-wicking long underwear, then a layer of fleece or wool, then a weatherproof outer layer. Consider loose clothing, as the air in between the layers can act as extra insulation. Don't underestimate the power of a good accessory! Wool hats, wool socks, waterproof gloves with long sleeves, ski goggles (even just for backyard play), and balaclavas can all keep in their body heat and help them be more comfortable.



Timing is everything

Don't expect to be outdoors for hours at a time. It's ok to keep your outdoor sessions limited, even if means going out in short bursts. Take frequent breaks, especially when the temperature dips. Yes, you may spend longer getting ready to get outside than actually playing outside, but you can still chalk it up as a WIN.

Keep moving

Choose an active activity that keeps your blood pumping. Snowshoeing, cross-country skiing, sledding, skating, nature walks — these are great activities to help maintain your core temperature. Just make sure you don't overdress — You want to avoid sweating too much since wet clothes will promote heat loss. (This is where layers come into play!)



Prepare a warm treat

Have a thermos of hot chocolate at the ready!

Make a fire

Make a campfire and visit it every so often to soothe any frozen digits (but keep in mind the next bullet point).

Stay dry

If your clothing gets wet, go in and change right away. That also goes for gloves/mittens that get soaked. Wet clothes and accessories will only make you colder! Keep an extra set of gloves/mittens ready for those busy hands.

Consider indoor/outdoor activities

When the weather is too extreme, consider alternatives. Think about where indoors and outdoors might collide: greenhouses, zoos, nature centers, aviaries. Even skating rinks!

Interact with nature from indoors

Extreme weather may also lead to an adjustment in your get-outside policy. You can still interact with nature from inside your home to tide you over until your next outdoor adventure. Set up an observation zone near a door or window. Get a notepad, binoculars, art supplies. Ask your child to observe what they see. **When deciding**

Continued next page

Hibernation, continued from page 4

United States remain awake and somewhat active in winter, occupying hollow plant stems, abandoned beetle burrows, underground tunnels or dead standing trees. But the stage at which they overwinter varies. For example, mason bees will overwinter as adults in their cocoons, while leafcutter bees spend the season as larvae.

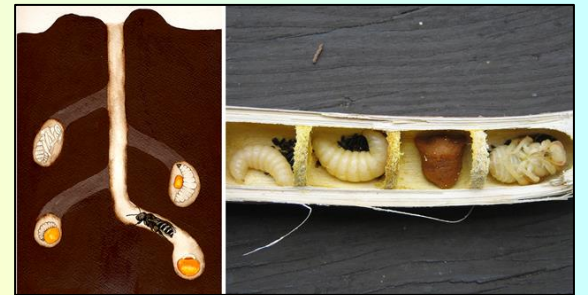


Illustration (left, Sarina Jepsen) showing ground nesting bees. Photo (right, Katharina Ullman) showing cavity nesting bees in a hollow stem. From: <https://xerces.org/blog/5-ways-to-increase-nesting-habitat-for-bees>

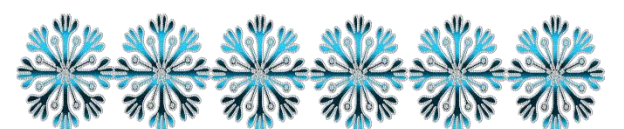
Honeybees overwinter as a colony in their hive, clustering around the queen and vibrating their flight muscles to generate heat. "They're not hibernating," Kelly says. "They're active and just kind of waiting out the winter."

Hibernation vs. Torpor

We like to think of animals that hibernate as sleeping the winter away, but sleeping and hibernating are not one and the same. Hibernation is a form of **torpor**, which is a way for animals to conserve energy by reducing their metabolic functions during extreme temperatures. There are two distinct kinds of torpor: hibernation and daily torpor, Russell said. *When a period of torpor lasts longer than 24 hours, it is hibernation. When animals are in torpor for less than 24 hours, it is considered daily torpor.*



- https://www.marinettecounty.com/i_marinette/d/Land_Information/northwoods_journal/jan2021small.pdf - see page 8 for more about hibernation
- https://www.swnewsmedia.com/chanhassen_villager/news/opinion/commentary-hibernation-give-it-a-rest/article_623d0120-719b-501c-8d11-7a35dfe01e7b.html
- <https://www.dupageforest.org/news/conservationist/2017/fall/winter-prep>



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What’s the Difference Between Weather and Climate?

<https://www.ncei.noaa.gov/news/weather-vs-climate>



Take a moment and think about the weather today where you are. Is it normal or typical? Is it what you’d expect? If it’s been cool the past few days but the temperature is climbing today, is that weather or climate? Are weather and climate the same thing? *Though they are closely related, weather and climate aren’t the same thing. Climate is what you expect. Weather is what actually happens.*

What exactly is weather?

More specifically, weather is the mix of events that happen each day in our atmosphere. Even though there’s only one atmosphere on Earth, the weather isn’t the same all around the world. Weather is different in different parts of the world and changes over minutes, hours, days, and weeks.

Most weather happens in the part of Earth’s atmosphere that is closest to the ground - called the *troposphere*. And, there are many different factors that can change the atmosphere in a certain area like air pressure, temperature, humidity, wind speed and direction, and lots of other things. Together, they determine what the weather is like at a given time and location.



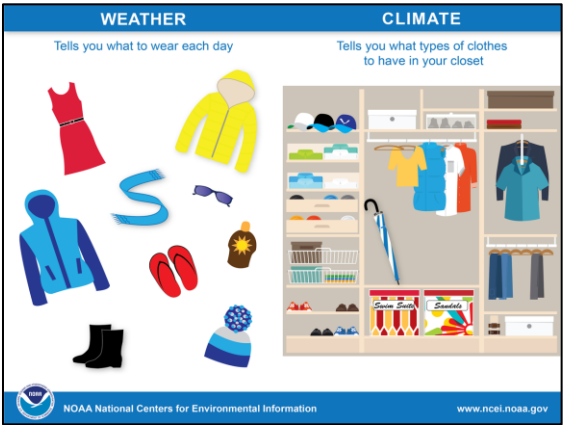
What exactly is climate?

Whereas weather refers to short-term changes in the atmosphere, climate describes what the weather is like over a long period of time in a specific area. Different regions can have different climates. To describe the climate of a place, we might say what the temperatures are like during different seasons, how windy it usually is, or how much rain or snow typically falls.

When scientists talk about climate, they’re often looking at averages of precipitation, temperature, humidity, sunshine, wind, and other measures of weather that occur over a long period in a particular place. In some instances, they might look at these averages over 30 years. And, we refer to these three-decade averages of weather observations as [Climate Normals](#).

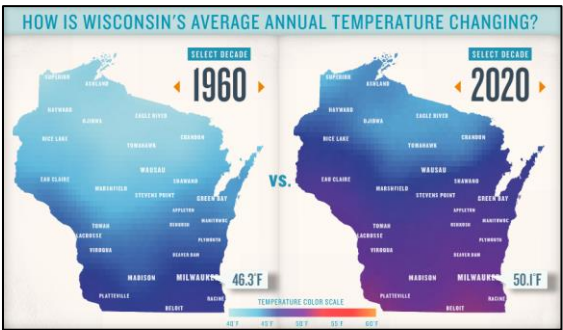
Looking at Climate Normals can help us describe whether the summers are hot and humid and whether the winters are cold and snowy at a particular place. They can also tell us when we might expect the warmest day of the year or the coldest day of the year at that location. But, while descriptions of an area’s climate provide a sense of what to expect, they don’t provide any specific details about what the weather will be on any given day.

Here’s one way to visualize it - weather tells you what to wear each day. Climate tells you what types of clothes to have in your closet.



How do weather observations become climate data?

Across the globe, observers and automated stations measure weather conditions at thousands of locations every day of the year. Some observations are made hourly, others just once a day. Over time, these weather observations allow us to quantify long-term average conditions, which provide insight into an area’s climate.

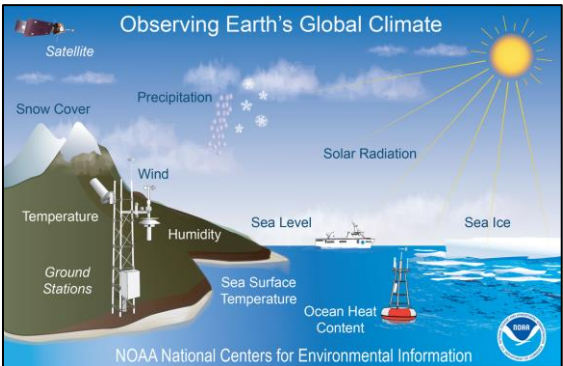


From <https://pbs.wisconsin.org/article/climate-wisconsin/>

In many locations around the United States, systematic weather records have been kept for over 140 years. With these long-term records, we can detect patterns and trends. And, as the Nation’s official archive for environmental data, it’s our job to collect, quality control, and organize these data and make them available online for scientists, decision makers, and you.

Are regional climates different from the global climate?

Like the United States, different regions of the world have varying climates. But we can also describe the climate of an entire planet—referred to as the [global climate](#). Global climate is a description of the climate of a planet as a whole, with all the regional differences averaged. Overall, global climate depends on the amount of energy received by the sun and the amount of energy that is trapped in the system. And, these amounts are different for different planets. Scientists who study Earth’s climate look at the factors that affect our planet as a whole.



How does the climate change?

While the weather can change in just a few minutes or hours, climate changes over longer time frames. Climate events, [like El Niño](#), happen over several years, with larger fluctuations happening over decades. And, even larger climate changes happen over hundreds and thousands of years.

Keeping Kids Active, Continued

whether or not it’s “safe” for you to play outside, be mindful of the windchill and make a decision that is right for your family. For some of you, the “no way” zone is temperatures less than 20 degrees. For others, that zone may be temperatures less than 13. Regardless, do what is right for you, feel no guilt. For more information on the effect of windchill, check out this chart: <https://www.weather.gov/safety/cold-wind-chill-chart>.

WHAT your kids can do to stay active outside this winter

- Go **skating, skiing, sledding, tubing, snowshoeing**.
- Go for a **nature walk**. How do your surroundings look different from last season?
- After a fresh snowfall, go **tracking**. Do you see evidence of any wildlife? Check out this article for tips on tracking wildlife with kids: <https://www.outdoors.org/articles/amc-outdoors/wildlife-detectives-tracking-in-new>
- Visit your local **playground**, see how their experience is different... Or the same!
- Carve/build a **sledding path**. For older kids, challenge them to build a banked turn.
- No snow? **Biking, scootering, roller blading**.
- Go on a **winter scavenger hunt**!
- Make **snow angels, build snow forts and snow men**.
- Go for a **photo walk**, noting the particular beauty of the season.
- Go **birdwatching**. With fewer leaves on the trees, birds can be easier to spot in the winter. Using binoculars and an identification book or app, see how many different birds you can name.
- **Play in the dark!** Don’t let the earlier sunset inhibit your time outside. Consider some of these [outdoor activities to do after dark](#).
- **Target practice**. If the snow allows, choose a tree or other object outside. Make several snowballs and see if you can hit the target. No snow? Use acorns!
- **Tree identification**: Check out the evergreen trees nearby and see how many you can name. Study their bark, cones, needles and note any differences. Check out this resource: <https://www.arborday.org/trees/whattree/whatTree.cfm?ItemID=E6A>
- Set up an **obstacle course** in your yard. Include unexpected elements like “make a snowman” or “slither through this snow tunnel”.
- Build a [shelter, lean-to or fort](#).
- Get involved in **citizen science** and find a project that works for you (some are region-specific): [observing the weather](#), [taking photos of snow](#), [counting golden eagles](#) and many more.
- **Fun with sticks!** Gather a collection of sticks and see where inspiration takes you!
- Play **hide and seek!** Or switch things up and hide Easter eggs around your yard, surprising your kids with the unexpected.

Helping your kids stay active outside this winter can be bring many rewards. Start by thinking through a family [Winter Lockdown Survival Guide](#) and see this as an opportunity for adventure. Make a plan, get out there, dress appropriately and find joy in being outside on a cold day!

Continued next page



The US's First Roadmap for Recycling

Excerpts from <https://grist.org/beacon/the-uss-first-roadmap-for-recycling/> & <https://www.eenews.net/articles/epa-unveils-new-recycling-push-pegged-to-climate-justice/>



Most recyclable materials in the U.S. are never repurposed into new products; the proportion of waste that gets recycled or composted has hovered between [30 and 35 percent since 2005](#). The numbers are even worse for plastic, of which only 9 percent gets recycled. But the Biden administration has a plan to do better.

The Environmental Protection Agency, or EPA, announced in November 2021 a new plan to expand recycling rates while prioritizing environmental justice and emissions reductions. Called the [National Recycling Strategy](#), it reaffirmed the agency's commitment to achieve a [50 percent recycling rate by 2030](#).



The plan charts the way toward a more circular economy with five objectives, including reducing the amount of contaminated materials in the recycling stream and developing new mechanisms to track the flow of recyclables into the waste management system. The strategy also incorporated an equity lens, promising to include environmental justice principles into "all aspects" of its implementation.

Michael Regan, the EPA's administrator, said in a [statement](#) that the plan would be bolstered by recycling investments in the infrastructure bill that President Joe Biden signed into law in November 2021. "The strategy will help transform recycling and solid waste management across the country while creating jobs and bolstering our economy," he said.



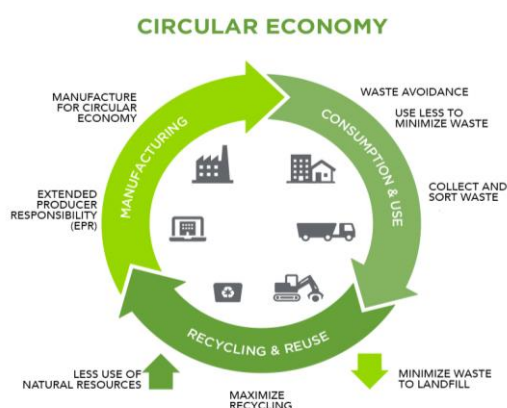
Finding novel ways to reuse plastics, *upcycling* uses the same building blocks of one material to make something of greater value, like turning plastic bottles into automotive lubricants. (Image by Argonne National Laboratory.)

Environmental advocates welcomed the plan, but stressed key shortcomings — including the inclusion of a process called "[chemical recycling](#)," which converts discarded plastic into fossil fuels to be burned.

Tok Oyewole, U.S. and Canada policy and research coordinator for the nonprofit Global Alliance for Incinerator Alternatives, said that the EPA should have focused more on upstream solutions — reducing the amount of plastic that companies produce in the first place. The plan is

a "positive step forward," she told me, but in some ways, "instituting a recycling strategy before any waste reduction and reusable strategies is backwards."

Taking a "circular economy" approach, the National Recycling Strategy has leading objectives that range from bolstering data and the process of recycling collection to a major source of ire for recyclers: contamination. Research has found that around 17 to 25 percent of U.S. recyclables [may be contaminated](#).



The plan also includes an assessment of recycling infrastructure, with a commitment to focusing on both environmental justice and what is needed across the country. EPA additionally intends to create a goal of reducing the climate impacts associated with recycling and materials management.

Sacoby Wilson, a member of EPA's National Environmental Justice Advisory Council, said the plan's focus on environmental justice will be key going forward. "We have to work with industries that are significant sources of single use products," Wilson said in a statement. "And, when we address recycling, we must address where these waste products come from, where they go, and how they're impacting the health, sustainability, and quality of life in communities of color."

The recycling goal, proposed under former EPA Administrator Andrew Wheeler, also came with few details about how the agency plans to meet it. While industry members agree the Biden administration could not afford to backtrack on the number, several said they were hoping the agency would soon lay out more details.

One cause for hope is a major victory for the recycling industry - Biden's signature on the much-anticipated bipartisan infrastructure bill. It provides \$275 million for a recycling infrastructure grant program created by the "Save Our Seas 2.0 Act" passed in 2020 and signed by former President Trump. It also includes \$75 million dedicated to boosting recycling education and consumer participation with language from the "RECYCLE Act" ([S. 923](#)) incorporated in the final product.

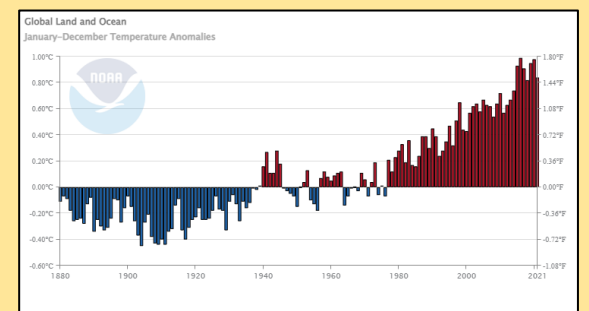
That funding is balm for recyclers and many hope it will help EPA put measures into motion. In some ways the money falls short - the Recycling Partnership has estimated some \$17 billion might be needed to fully boost recycling infrastructure nationwide.

For more about the National Recycling Strategy and more, visit:

- <https://www.epa.gov/system/files/document/s/2021-11/final-national-recycling-strategy.pdf>
- <https://www.breakfreefromplastic.org/pollution-act/>
- <https://recyclenation.com/2022/01/biggest-recycling-law-changes-in-2022/>
- <https://www.theguardian.com/environment/2021/dec/01/deluge-of-plastic-waste-us-is-worlds-biggest-plastic-polluter>

Climate, continued

Today, climates are changing. Our Earth is warming more quickly than it has in the past [according to the research of scientists](#). Hot summer days may be quite typical of climates in many regions of the world, but warming is causing [Earth's average global temperature to increase](#). The amount of solar radiation, the chemistry of the atmosphere, clouds, and the biosphere all affect Earth's climate.



Global land & ocean temperature anomalies, 1880-2021 – source NOAA.

As global climate changes, weather patterns are changing as well. While it's impossible to say whether a particular day's weather was affected by climate change, it is possible to predict how patterns might change. For example, [scientists predict more extreme weather events](#) as Earth's climate warms.

Why do we study climate?

Climate, climate change, and their impacts on weather events affect people all around the world. Rising global temperatures are expected to further [raise sea levels](#) and [change precipitation](#) patterns and other local climate conditions. Changing regional climates could alter forests, crop yields, and water supplies. They could also affect human health, animals, and many types of ecosystems. Deserts may expand into existing rangelands, and features of some of our National Parks and National Forests may be permanently altered.



Making Terrariums at Home: They're Beautiful & Good for the Mind

<https://www.goodnewsnetwork.org/glass-terrariums-at-home-help-with-mental-health-and-make-great-gifts/>



Gardeners “tend” to be happier than most, because among other reasons like getting more vitamin D or being in nature, they always have something to look forward to.

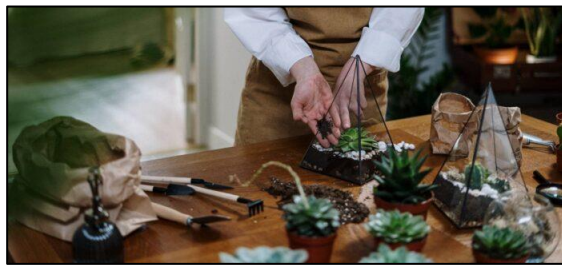
But one of the most fascinating gardening trends is undoubtedly the popular advent of building and maintaining terrariums - little slices of tropical climate encased in glass jars, bottles, or fish tanks which if prepared correctly can last for decades.

NASA describes a terrarium as a “forest enclosed in its own little world,” but there’s no particular rulebook for how big a terrarium should be or what should be kept inside. The Subreddit “Let’s Talk Terrariums” bears witness to that. Below are mushroom pendants and a custom 3D printed terrarium enclosure.



Far from being simple eye-candy, tending a terrarium can actually improve one’s mood - even the simple act of having a plant or two around will decrease anxiety, and can help refresh one’s mind after a period of focusing on work. This was particularly poignant, one terrarium business owner told the BBC, during lockdowns.

“I saw a real influx in people wanting to get into horticulture and grow their green thumb,” says Emma Terrell, from Ottawa, Canada. The Great White North also experienced a boom in cultivating mushrooms at home. Terrell runs Urban Botanist where she sells DIY supplies for making terrariums of all kinds. “People saw it as a way to relax, unwind, get creative, and engage with that innate need within us to engage with nature.”



There’s also a natural geometry, or so it’s thought, of plants that make them appealing to look at. All humans tend to prefer things in symmetry, or in consistent patterns like a spiral, and so plant leaves or fern stalks may be nice to look at for reasons involving fractals and mathematics rather than just ‘simple’ beauty.

Doing a terrarium at home

To get started, you can buy terrarium kits online or visit local shops to find the right container. Making your own terrarium begins with first deciding whether one wants an open-air terrarium or a closed-off version.

For a closed-off terrarium, pick a soil substrate that won’t cultivate mold. James Wong, a botanist and author told the BBC to use kurodama soil, which is typical of bonsai trees, a species that can also be at home in a terrarium.



Next, pick plants that would be at home on the forest floor in the tropics. Simple species like moss and ferns work well.

“I’ve researched all the different species [of moss], there’s only one that’s easily accessible and very reliable. It’s called *Leucobryum glaucum*, sold by florists as ‘bun moss,’” Wong said.

There’s a limit in a closed ecosystem to how many plants can be sustained, so fill in gaps using decorative objects like stones, driftwood, or maybe a garden gnome.

NASA for kids suggests using a layer of activated charcoal above a strata of rocks at the bottom of the terrarium, under the soil, to help filter water and prevent the growth of mold. They say to put the terrarium in indirect light, but Wong says you can use a growing light to help if the room is too dark.

For more about terrariums and referenced sites in this article, visit:

- ✓ <https://www.bbc.com/future/article/20211130-the-magical-miniature-worlds-of-terrariums>
- ✓ <https://climatekids.nasa.gov/mini-garden/>
- ✓ <https://www.gardeningknowhow.com/ho-useplants/hpgen/terrarium-care-guide.htm>
- ✓ <https://www.guide-to-houseplants.com/how-to-make-a-terrarium.html>

Winter recreation safety tips for outdoor adventurers

<https://www.michigan.gov/dnr/>



As many people start venturing outside for winter, the Michigan Department of Natural Resources reminds everyone to consider seasonal safety tips before enjoying their favorite winter activities.

“People often get caught up in the excitement of the moment and overlook general winter safety,” said Lt. Tom Wanless, with the DNR Law Enforcement Division’s Recreational Safety, Enforcement and Safety Section. “We want to send out a beginning of the season reminder to please keep safety in mind this winter. Dress for the weather, check the forecast before you go out and, if you’re snowmobiling, please ride sober and at a safe speed.”

Regardless of your favorite winter activity, prepare before you leave the house by [checking, dressing and packing for the weather](#). That means:

- Wear light layers that can easily be added or removed – it is possible to overheat even during the winter.
- Carry the appropriate equipment for your activity, such as a flashlight, rope, ice picks or ice claws.
- Have spare equipment available in case something breaks.
- Stay hydrated and fueled – bring water and snacks.
- Bring a buddy.
- Inform others about where you will be and how long you plan to be gone and schedule check-in times.
- Carry a two-way communication device that receives service in remote areas.
- Be aware of your health – if you’re not feeling well, don’t go out.

The DNR’s [Ride Right](#) snowmobile safety campaign emphasizes the importance of riding sober, at a safe speed and on the right side of the trail. Speed is the main factor in fatal and serious injury snowmobile accidents.



If you plan to be around ice, always use extreme caution, as there is no reliable way to test ice thickness. **For more ice safety tips, including what to do if you fall through the ice, go to [Michigan.gov/IceSafety](https://www.michigan.gov/IceSafety).**



Saturday, February 5th
Niagara Riverside Trails
Tyler Rd, Niagara
5:45pm – 6:15pm

Snowshoe, Ski & Hiking Trails
1.5 Mile loop

Bonfire, Chili & Hotdogs available
Pre-Registration: \$10 | Day of: \$15
Register at Active.com

Saturday, February 12th
Governor Thompson State Park
N10008 Paust Ln, Crivitz
6:00pm – 9:00pm

Skate & Classic Groomed Ski Trail
Hike & Snowshoe Trail
1.0 Mile loop

Dogs Permitted
Check out ice sculptures along the way!
Warming Fires & Hot Chocolate available

Saturday, February 19th
Goodman County Park
N15201 Goodman Park Rd, Athelstane
6:00pm – 8:30pm

Snowshoe & Hiking Trail
1.5 Mile loop

Dogs Permitted
Warming Fire & Hot Chocolate available
Regual Park Fees Apply
(\$5 per vehicle or 2022 annual sticker)

Candlelight Hikes

MARINETTE COUNTY AREA



TheRealNorth.com/events

The Real North - Marinette County

YOUNG EXPLORERS

UNDER THE SNOW

THERE IS AN AMAZING, SECRET WORLD UNDERNEATH THE SNOW!



When snow falls, it creates a blanket on the ground that traps the little bit of heat that rises out of the earth. The heat melts just the bottom layer of snow, and this creates a pocket of air that is exactly the right size for tiny creatures to burrow and build tunnels underneath it. Scientists call this the **SUBNIVEAN ZONE**.

COLD BUT COZY

Just like the blankets on your bed, layers of snow keep the subnivean zone warm. Well, warm for a mouse, anyway! Even when the air outside drops below 0°F, the layer beneath the snow stays right around 32°F. Many animals—like red squirrels, mice, moles, voles, and shrews—depend on this special habitat to survive the cold, harsh winter.

THE HOLE STORY

Sometimes you'll see little "mouse holes" in the surface of the snow. These are actually air vents that provide fresh air to the animals living below in their tunnels.

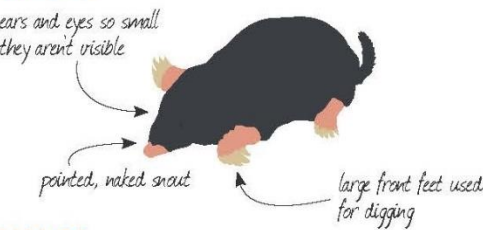
BOTTOMS UP!

Foxes and owls have excellent hearing, and can sometimes hear the little animals moving around under the snow. You may even see a fox dive face-first into the snow, trying to catch a mouse or shrew by surprise.

MOLES VS. VOLES VS. SHREWS

In Massachusetts we have 3 mole, 5 vole, and 5 different shrew species! Here are some tips on distinguishing these secretive mammals:

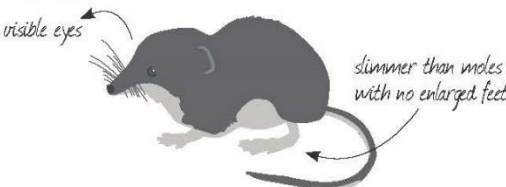
MOLES



VOLES



SHREWS

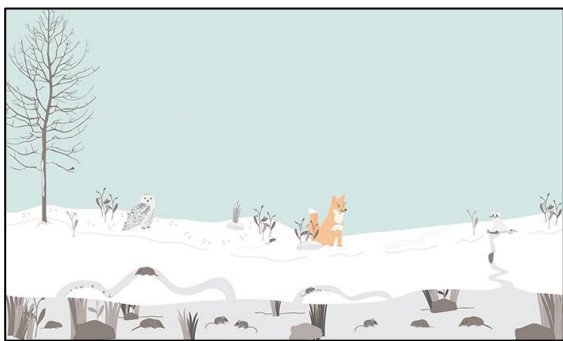


Although the information at left is from Massachusetts, we have some of the same species in Wisconsin! We have 2 mole species, 6 shrew species, and 4 vole species. In Marinette County, we have the **star-nosed mole**; the **masked, pygmy, short-tailed, arctic & water shrews**; and the **woodland, prairie, red-backed, and meadow voles**. Below are pictured top to bottom: star-nosed mole, short-tailed shrew, and a vole. The short-tailed shrew has a toxin in its saliva that allows it to immobilize larger prey like small snakes, chipmunks, and frogs as in the photo!



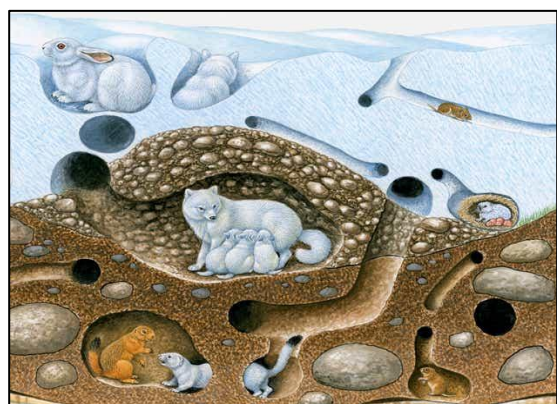
The Subnivean Zone: Shelter in the Snow

https://northernwoodlands.org/outside_story/article/subnivean-shelter-snow &
<https://yosemite.org/getting-in-the-subnivean-zone/>



The **subnivean zone** is the area between the surface of the ground and the bottom of the snowpack. The word *subnivean* comes from the Latin “sub” (under) and “nives” (snow). Mice, voles, and shrews retreat here for protection from cold temperatures, bitter winds, and hungry predators. Food is right at hand: grass, leaves, bark, seeds, and insects are free and unfrozen.

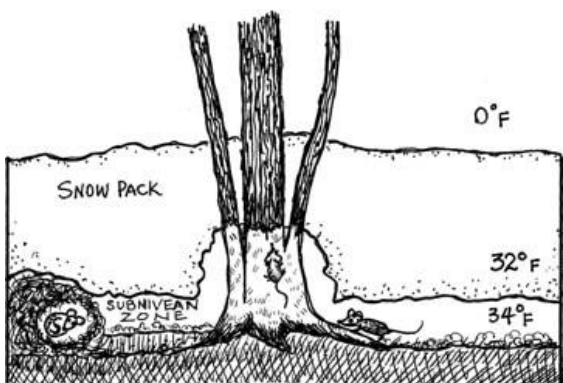
Throughout the winter, subnivean-dwelling mammals move through a network of snow-covered tunnels, snacking on leaves, seeds and bark, or feasting on insect eggs and larvae. Some animals stockpile sustenance in preparation for winter, while others take a more spontaneous approach, eating what they can find. Holes connecting the tunnels to the surface provide vital ventilation, allowing carbon dioxide to escape.



The subnivean zone begins to form with the first snowfall that lingers. Two things happen. First, some of the snow lands directly on hardy vegetation and overhanging rocks, blocking snow from accumulating underneath. If the plants have already frozen by this time, they are able to hold up subsequent snows like little umbrellas. Eventually the weight causes the slender tips to droop to the ground, creating a protected area perfect for hideaways and runways.

At the same time, the snow that lands on the ground *sublimates*; that is, changes from a solid into a gas without going through the melting stage. Sublimation is prompted by heat radiating from the earth. Warm, moist water vapor rising into the bottom layer of snow cools, condenses, and refreezes into tightly packed, rounded ice crystals.

It takes only six inches of snow for mice, voles, and shrews to have a sturdy roof over their heads and roomy living quarters below. Add another two inches and the subnivean zone remains within a degree or two of 32°F, regardless of the temperature and weather conditions in the outside world.



Great gray owl hunting in the snow

Living under the snow is not without risk. Owls can hear mice and voles running around underground from thirty yards away. With balled-up feet, they crash through the top crust and all the layers of snow to grab their prey. Foxes and coyotes (below) detect by scent. With an acrobatic pounce, these predators will dive right in for their meal. Suffocation is a hazard for those left behind in a collapsed tunnel.

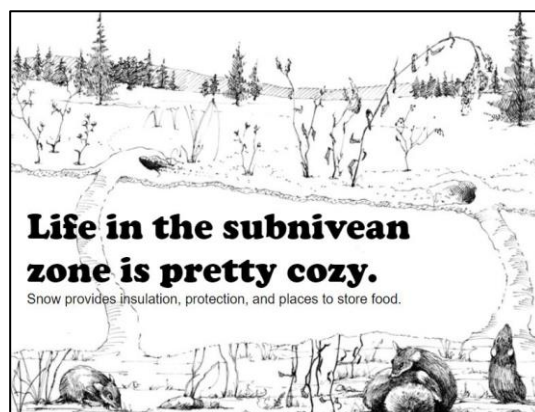


Another predator is the ermine, a white weasel with a black-tipped tail (short-tailed and long-tailed weasels). Its long, slender body can easily squeeze down narrow air shafts. It boldly enters a mouse's domain and fills up on its favorite food. To add insult to injury, it will sometimes build a nest of mouse fur and usurp the tunnel system for its own.



Ermine with a vole

Despite the ever-present danger of becoming someone else's meal, the subnivean zone offers its residents benefits they'd miss on the surface. Small mammals lose heat more quickly than larger animals, and can't bear the weight of insulating winter coats like the ones that keep their predators warm. In the insulated subnivean zone, though, they can take advantage of a stable, relatively temperate climate; easy access to food that would otherwise be out of reach; and space to sleep, sometimes snuggled up with fellow critters, out of sight.



In addition to predation, subnivean denizens face unpredictable hazards, such as collapsed tunnels, suffocation and flooding.

Come spring, the subnivean dwellers (and any weasel still pursuing them) face other challenges. A sudden thaw or early rain can drown them as water floods their home. The conditions that stir sugar maples to life also cause the snow to alternately thaw and freeze, weakening its structure. One day the snowpack will collapse, often with a pronounced “whumph.” As spring progresses and all but the last few inches of snow melts, the ingenuity of subnivean survival is spelled out like a map: telltale humps appear where tunnels had crisscrossed the field from tree to rock and beyond. And unlike an abandoned bear den or the deer browse line, all evidence of this survival strategy will disappear when the grass greens up.

To the human senses, the subnivean zone is nearly invisible. We might spot tiny tracks leading to small entrance holes or see the remnants of icy-roofed tunnels as the snow starts to melt, but usually the bustling sub-snow ecosystem eludes our notice. Look for an air hole in the snow and dig a pit straight down next to it. If you're lucky, you may discover an intricate system of rooms and hallways. The most elaborate contain a sleeping area, a breakfast nook, a food cache corner, and a latrine. Long, narrow tunnels connect everything.



For convenience, most tunnels begin where there is a tree trunk, large rock, or thick bush. These dark surfaces also absorb solar heat, helping to moderate the temperature of the animals, the plants, and the ground itself.



The next time you're hiking in a snow-covered area, look for hints of life underfoot, such as tiny tracks leading to small holes in the surface, or coyotes staring intently at apparently empty patches of snow. Stick to trails when you can, and tread lightly – you never know whose roof you're walking on!

For more about the subnivean habitat, visit:

- <https://www.schlitzaudubon.org/2019/12/20/beneath-the-snow-the-subnivean-zone/>
- <https://www.mass.gov/files/documents/2018/03/09/CurrentsWinter2018.pdf>
- <https://www.rgi.com/story/life/2021/01/14/beneath-snows-winter-subnivean-zone/4163619001/>
- <https://wecnmagazine.com/article/stories-in-the-snow/>
- <http://www.lewis-clark.org/article/2058>
- <https://uwm.edu/field-station/and-now-for-something-a-little-different-vii-attack-of-the-killer-shrews/>



Help Stop Invasive Plants from Slipping into Wisconsin

By Melinda Myers

<https://www.melindamyers.com/>

For many of us, winter is the start of the gardening season. We are busy browsing catalogs, reading garden articles, and looking for sources of new plants. As the planning process continues, the plant wish list keeps expanding. Once your list is complete and before placing any order online, be sure to check your list for any invasive plants that are prohibited or restricted in Wisconsin.

According to the Invasive Species Rule NR40, prohibited plants are those that are not currently found or occur in isolated areas in the state. If introduced into the state, these plants are likely to cause significant economic or environmental harm or harm to human health. Restricted plants according to NR40 are already established in the state causing harm or have the potential to cause significant harm.



Butterfly dock has reportedly grown as tall as 7 feet with leaves that can span over one yard in diameter, shading out native species. Photo credit: DNR.

Although regulations for the sale, purchase and possession of invasive species are in place, some online sellers are not aware, up-to-date, or concerned with following existing state and federal regulations. Just because you can purchase a plant does not mean it is allowed in Wisconsin. So, it is up to us, the individual gardener, to protect our gardens, natural spaces, and waterways.

Many of us purchased plants in the past unaware they would eventually become a problem for native plants, wildlife, and beneficial insects when food sources and nesting sites disappear. Many also negatively impact our waterways, recreational use of spaces, and the economy. Now, we are tasked with paying for and personally eliminating the problem. More research and precautions are being taken to manage existing invasive species and reduce the risk of future problems.

As we learn more by observing what is happening in our own and other states, the list of prohibited and restricted plants keeps changing. It is important to visit the Wisconsin Department of Natural Resources [website](https://dnr.wisconsin.gov/) and make any needed changes before placing your plant order.

Growing even one or two invasive plants in your garden, shoreline planting or pond can have an impact. Invasive plants tend to be vigorous growers, reproducing faster than our native plants, and more tolerant of adverse conditions. This allows them to quickly spread, take over and cause harm.



Common reed (*Phragmites australis* subsp. *australis*), or more commonly known as Phragmites, is a subspecies of *Phragmites australis* that is native to Europe and Asia.

Not only do these invasive plants disrupt the ecosystem; they have a negative impact on our economy, personal budgets, outdoor recreation, and health. In 2001 an estimated \$137 billion dollars were spent in the United States to [manage the ecological damage](#) and to control invasive species. These costs have continued to increase each year and many of the expenses are passed on to consumers.



Eurasian water milfoil in a boat propeller

It is easy to see the impact of some of the thugs, like [Japanese knotweed](#), that have overrun gardens, landscapes, shorelines and our waterways. New infestations usually occur when soil containing rhizomes of this invasive plant are moved to a new location or washed downstream. Even small root segments only a couple inches long can start a new infestation.

The yellow flag Iris (*Iris pseudacorus*) is an invasive plant masked as an adaptable and beautiful perennial. This beauty seems harmless growing along the shoreline, in the garden or pond. Its ability to spread and vigorous growth habit have made it a threat to our waterways. Seeds or pieces of the rhizome can float away from the planting or be accidentally moved into natural spaces. It quickly adapts to a wide range of growing conditions and forms dense clumps or floating mats that can alter wildlife habitats and the diversity of species.



Photo courtesy of Zach Stewart (Douglas County, WI)

The ability to spread and vigorous growth habit of the yellow flag Iris (*Iris pseudacorus*) make this invasive plant a threat to our waterways.

I have teamed up with the [UW-Madison Extension Aquatic Invasive Species Outreach Program](#) to help spread the word about aquatic invasive plants. As an influencer in the gardening world, I need your help to reach more gardeners. Many people are not aware of this threat and need our help to make wise plant decisions.

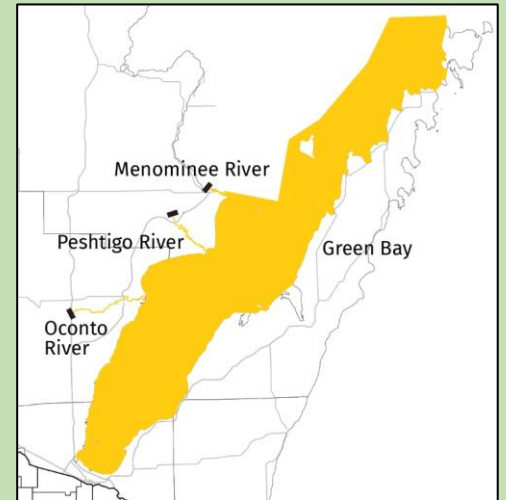
Thanks to all of you who are already spreading the word and actively trying to manage invasive terrestrial and aquatic plants. If you are interested in volunteering or need advice to help control invasive plants, email DNRAISinfo@wisconsin.gov. As we work together sharing our passion for gardening and our concern for Wisconsin's natural spaces, lakes, and waterways, we can make a difference.



New PFAS Fish Consumption Advisory Issued for Bay of Green Bay and Associated Tributaries

<https://dnr.wisconsin.gov/newsroom/release/52661>

The Wisconsin Department of Natural Resources (DNR) and the Department of Health Services (DHS) today announced a new PFAS-based consumption advisory for the Bay of Green Bay and its tributaries following results of fish sampling conducted in 2020.



Elevated levels of PFOS (perfluorooctane sulfonate), a type of PFAS (per- and polyfluoroalkyl substances), were detected in rock bass sampled from the Peshtigo River. As a result, the DNR and DHS recommend consuming only one meal per week for rock bass from the Bay of Green Bay and its associated tributaries up to the first dam. This includes portions of the Peshtigo, Oconto and Menominee rivers.

Low levels of PFOS were found in other species sampled from the Peshtigo River and Green Bay, but results were not high enough to warrant issuing new, more restrictive advisories.

PFAS are a group of human-made chemicals that have been used for decades in various products, such as non-stick cookware, fast food wrappers, stain-resistant sprays and certain types of firefighting foams that have made their way into the environment.

Health risks may increase when fish with high levels of PFAS are consumed. These can include increased cholesterol levels, decreased immune response, and decreased fertility in women, among other health effects. [More information is available on the DHS website.](#)

Following fish consumption advisories will help protect you from consuming excess PFOS, Polychlorinated Biphenyls (PCBs) and mercury. A complete list of up-to-date consumption advisories can be found in the DNR's [Choose Wisely booklet](#).

Fish consumption advice and information on the effects of PFAS can be found on the DNR's website: <https://dnr.wisconsin.gov/topic/PFAS>.

For more about PFAs, visit:

- <https://www.epa.gov/pfas> – U.S. EPA
- <https://www.ehn.org/household-products-with-pfas-2656476590/significant-levels-of-pfas-detected>
- <https://www.cleanwisconsin.org/our-work/water/pfas/>



12 Winter Birds Myths and Facts

<https://www.birdsandblooms.com/birding/birding-basics/winter-birds-myths-facts/>

When it comes to winter birds, it seems there are even more myths than usual. Here are a few of the common winter bird myths – here we debunk these winter birds myths once and for all with the correct facts.

Myth: Birds will freeze to death when temperatures drop far below zero.

Winter Birds Fact: Birds are well equipped to survive the coldest of temperatures. They store fat during the short days of winter to keep themselves warm during the long nights. During those freezing nights, they fluff their feathers to trap heat and slow their metabolism to conserve energy (below). They also look for good places to roost, whether it's a birdhouse, natural tree cavity, grass thicket, evergreen or shrub.



Myth: Robins always fly south for winter.

Winter Birds Fact: If there is sufficient food on their breeding grounds, American robins, bluebirds, and a host of finches and owls remain in the area where they spent the summer. As these birds often eat insects, they will instead forage among tree bark for overwintering bugs rather than on the frozen ground, where you're more likely to see them in spring and summer.

Myth: You should take birdhouses down in winter because birds don't use them and other creatures will move in.

Winter Birds Fact: On the contrary! A birdhouse makes a great roosting house in winter. Eastern bluebirds will pile into houses to spend cold nights. One photographer once even snapped a picture of 13 male bluebirds in a single house!



Winter roosting pockets

Myth: If you leave town, the birds that rely on your feeders will die.

Winter Birds Fact: Research has proven this one wrong. Scientists have shown that [chickadees](#), for example, will eat only 25% of their daily winter food from feeders. They find the other 75% in the wild. In addition, with so many people feeding them nowadays, birds in your yard will simply fly to a nearby neighbor to get their food until you return home.

Myth: Birds' feet will stick to metal bird feeders and suet cages.

Winter Birds Fact: Most suet cages have a laminated covering, so you don't have to worry about birds' feet sticking to it. But in general, their feet can endure cold weather. Birds have a protective scale-like covering on their feet, and special veins and arteries that keep their feet warm.

Myth: All hummingbirds migrate south for winter.

Winter Birds Fact: Though most hummingbird species in North America do migrate south for the

winter, the Anna's hummingbird remains on its West Coast breeding grounds.

Myth: Birds always migrate in flocks.

Winter Birds Fact: Though many birds [migrate in flocks](#) - common nighthawks, American robins, swallows and European starlings, for example - other species migrate alone. The most amazing example of this is a juvenile hummingbird that has never migrated before, yet knows when to fly, where to fly, how far to fly and when to stop. And it does this all alone.

Myth: Migration means north in the spring and south in the winter.

Fact: Some bird species migrate to higher elevations in the spring and down to lower elevations in the winter. Examples include rosy finches and ptarmigans in the West.

Myth: Peanut butter will get stuck in birds' throats, and they will choke.

Fact: Peanut butter is a very nourishing food for birds, especially in winter when the production of fat is important to their survival. The winter birds myth that it will stick in their throats simply isn't true.



A downy woodpecker enjoying peanut butter

Myth: American goldfinches are bright yellow year-round.

Fact: As fall approaches, American goldfinches lose their bright-yellow plumages, replacing them with feathers that are a dull, brownish-green. Many people don't recognize these birds in winter, even though duller-colored birds are still at the feeders. They assume that their "wild canaries" have migrated south for winter.

Myth: Woodpeckers peck on house siding in winter for food or to create nesting cavities.

Fact: Why do woodpeckers peck? Although there are cases where woodpeckers find food in wood siding (and may even nest inside the boards), nearly all the pecking in late winter is done to make a noise to court mates. This is their way of singing a song to declare territory.

Myth: If you have water in a birdbath when the temperature is below freezing, birds will freeze to death from wet feathers.

Fact: Birds will drink from a heated birdbath, but if the temperature is well below freezing, they will not bathe in it and get their feathers wet. If you're still worried, offer warm water to drink, but make it too deep or inaccessible for the birds to bathe in.



Meet the Northern Hawk Owl!

<https://www.nps.gov/articles/northern-hawk-owl.htm> &
<https://www.owlpages.com/owls/species.php?s=1830>



Northern Hawk Owls are rare owls to spot when you're out and about. They're also one of the least studied birds in North America. These owls stand 36-41cm tall, have a 21-26cm wingspan, and weigh 7.5-14oz.

Northern Hawk Owls have dark brown feathers on their heads with white streaks and spots. Their bellies are white with brown streaks, and they have yellow eyes. **They are active during the day** and are usually found hunting for food in open areas that also have forests nearby.

These owls fly and hunt similarly to hawks, and they'll take down voles, lemmings, squirrels, grouse, and small birds. They are found in northern regions, such as Alaska, Canada, Scandinavia, and Russia. Only one of the three subspecies of this owl lives in North America, however.



Wisconsin is within the southern limits of the hawk owl's wintering range

They don't usually reuse their nests, although there are some exceptions. It's more common for them to return to the same areas each year to nest, even if they don't use the same nest specifically in that area. They'll tend to follow the flow of their prey populations. Predators to Northern Hawk Owls are Northern Goshawks, Great Horned Owls, Golden Eagles, Peregrine Falcons, and Lynxes.

They aren't considered endangered or threatened. While it's hard to spot one in the wild, when they are spotted, these owls don't seem to be bothered when humans are around. The exception to this is during the breeding season when they're protecting their young. They may act aggressively toward humans during that time, so it's best to keep a safe distance away.

